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The Semantic Determinants of Argument Expression: A View from the English Resultative Construction[1]

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1 The Appeal of Aspectual Determinants of Argument Expression

In recent literature, argument expression is often taken to be most immediately determined by aspectual properties. This idea is reflected in statements as strong as Tenny's Aspectual Interface Hypothesis that "Only the aspectual part of thematic structure is visible to the universal linking principles" (1994:2) and in van Hout's (1996) proposal that many argument expression alternations are instances of event type-shifting — i.e., aspectual reclassification. It is also implicit in Verkuyl's (1993:20) Plus Principle, a compositionality principle which requires objects to contribute to bounding an event, preventing *push* and other basically atelic transitive verbs from being analyzed as true transitives (329-349). The most frequently cited aspectual semantic determinants include predicate (or event)-related notions such as telicity and boundedness and NP (or entity)-related notions such as incremental theme (Dowty 1991), measure (Tenny 1987, 1992, 1994), delimiter (Borer 1994; Ritter and Rosen 1998; Tenny 1987, 1992, 1994), and subject of result (Borer 1998). Researchers crucially tie these aspectual notions to the transitivity of the predicate and to the direct objecthood of the relevant NPs.

In this paper, we argue that the impact of traditionally recognized aspectual properties — particularly the notions just cited — on argument expression has been overestimated (see also Reinhart 2000). Notions such as telicity have been

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implicated in certain well-known accusative/oblique morphological case alternations (Ackerman and Moore 1999, 2001; Arad 1998; Borer 1994, 1998; Filip 1989; Rosen and Ritter 1998; Tenny 1987, 1992, 1994), and incremental themehood may be one of the factors influencing direct object choice (Dowty 1991, Tenny 1994); however, they are not the only semantic determinants of argument expression and perhaps not even the major ones.

In this paper we propose that another event-based semantic notion, event complexity, should be included among the factors which determine argument expression. We delineate the notion of event complexity and then explicate the relationship between it and more traditional aspectual notions, arguing that event complexity should not be equated with any traditional aspectual notions. In particular the notion 'complex event' should not be equated with either 'telic event' or 'accomplishment'. The empirical basis of our argument is provided by one of the best known diagnostics for unaccusativity in English: the resultative construction. The connection between unaccusativity and telicity was first pointed out by L. Levin (1986) and by Van Valin (1990), who draws on the work of Centineo (1986, 1996). Telicity has subsequently been taken to be THE crucial semantic factor distinguishing unaccusative from unergative verbs in a number of papers by Borer (1994, 1998) and Hoekstra (1988, 1992), even though Rappaport Hovav and Levin [RH&L] (1992) had already pointed out that not all unaccusative verbs are telic; in fact, more recently, Reinhart (2000) argues forcefully against relating unaccusativity and telicity.

We too focus on telicity and related notions and their role in determining whether a verb is found in the unaccusative syntactic configuration. English intransitive verbs enter into the resultative construction in two different syntactic frames, and the distinct syntax of the frames has been attributed to whether the verb in the frame is unaccusative or unergative. The question we address is what semantic property distinguishes between the two patterns and how this feature can be tied to the difference in syntax. We show that an account in which the distribution of verbs in the different resultative patterns is determined by aspectual notions such as incremental theme, measure, or telicity does not make the appropriate distinctions, while one which appeals to event complexity as we define it does. The event complexity account was introduced in Levin and Rappaport Hovav [L&RH] (1999) and RH&L (2001); here we briefly review it and then focus on its ramifications for the nature of the semantic determinants of argument expression.

2 The Challenge of English Intransitive-based Resultatives

Previous studies of the resultative construction have uncovered a striking generalization: intransitive verbs combine with resultative XPs in two different ways

(Hoekstra 1988; L&RH 1995; Simpson 1983). They may have result XPs predicated of their subjects directly, as in (1), in what we call the BARE XP PATTERN; alternatively, they may have result XPs predicated of their subjects via the mediation of a 'fake' reflexive object, as in (2), in what we call the REFLEXIVE PATTERN.

(1) a. The clothes steamed dry on the radiator.
    b. The kettle boiled dry.

(2) a. The fans screamed themselves hoarse.
    b. The tourists walked themselves tired.

Any theory of argument expression must explain the distribution of intransitive verbs in the resultative construction. One common proposal is that unaccusative verbs enter into the bare XP pattern, while unergative verbs enter into the reflexive pattern. The difference in resultative patterns is attributed to the different syntactic configurations that the two types of verbs are found in (Hoekstra 1988; L&RH 1995; Rothstein 1992). That is, assuming that there is a syntactic restriction that the result XP must be predicated of a deep object (what L&RH 1995 call the Direct Object Restriction), then it follows that unaccusative verbs can have a result XP predicated directly of their derived subjects, whereas unergative verbs cannot have a result XP predicated directly of their underived subjects. However, if, as is usually assumed, argument expression is semantically determined, then we must ask what SEMANTIC property distinguishes between the verbs in the two patterns. The semantic property should then correlate with whatever semantic property distinguishes between unaccusative and unergative verbs.[2]

As mentioned, the semantic properties which are usually claimed to determine the unaccusative or unergative status of an intransitive verb are telicity, a property of predicates, and measure or incremental theme, both properties of NPs. Although incremental theme and measure are not defined in precisely the same way, both reflect comparable insights into what is important to characterizing the time course of an event and they overlap significantly, so in what follows we do not distinguish between them. There are two ways, in principle, that these notions might figure in

[2]Of course, if there is more than one semantic determinant of unaccusativity, it may be that a more complex combination of semantic properties distinguishes between the two patterns. In fact, agentivity, a nonaspectual property, is often suggested as being another determinant of unaccusativity (Dowty 1991; Van Valin 1990; Zaenen 1993). What emerges from our study, however, is that no combination of agentivity and traditional aspectual notions on their own fully determines the distribution of the two intransitive resultative patterns. In this section we show that atelic verbs may be found in both resultative patterns; furthermore, a number of agentive atelic verbs, including verbs of manner of motion, may be found in both patterns. So the choice of pattern needs to be explained by another property; in section 3 we propose this property is temporal dependence between subevents.

predictions concerning the distribution of verbs in the resultative construction; we consider both to see if either makes the correct prediction. One possibility is that the status of a verb in isolation is evaluated with respect to one of these notions, and this determines how it enters into the resultative construction; the other is that the resultative construction with the verb already integrated into it is evaluated to determine whether semantic differences are observed between the two resultative patterns. The second approach also requires an explanation of why different classes of verbs give rise to a semantic difference when entering into the construction.

As we now show, neither telicity nor incremental theme or measure makes the right predictions, whether with respect to the verb or the construction. Consider first the NP-related notions 'measure' and 'incremental theme'. When used in isolation, none of the verbs found in (1)-(2) take arguments which are incremental themes or measures in the traditional sense of providing a homomorphism between the denotations of the argument and the event (Dowty 1991; Krifka 1989, 1992, 1998; Tenny 1992, 1994). In isolation these verbs are atelic, and their single argument does not undergo any kind of scalar change. On the other hand, when found in the resultative construction, the single argument of all these verbs is a measure or an incremental theme[3] in that the entity it denotes undergoes a change which measures the temporal extent of the event. Therefore, the notions 'incremental theme' and 'measure' do not distinguish between the verbs that enter into the bare XP pattern and those which enter into the reflexive pattern.

We now move on to the predicate-related notion 'telicity'. All the verbs in (1)-(2) are atelic in isolation, as shown in (3)-(4), yet some enter into one form of the resultative construction, as in (1), and some into the other, as in (2). Nevertheless, both types of resultative constructions are telic, as shown in (5)-(6).

(3) a. The clothes steamed on the radiator for half an hour/*in half an hour.
    b. The kettle boiled for half an hour/*in half an hour.

(4) a. The crowd screamed for an hour./*in an hour.
    b. The tourists walked for two hours/*in two hours.

(5) a. The clothes steamed dry in ten minutes.
    b. The kettle boiled dry in ten minutes.

(6) a. The fans screamed themselves hoarse in no time.
    b. The tourists walked themselves tired in two hours.

[3] Dowty's notion of incremental theme needs some refinement to handle changes in properties which are not reflected bit by bit through the physical extent of an entity; see Hay, Kennedy, and Levin (1999) and Ramchand (1997) for discussion.

Once again, the verbs in isolation are alike with respect to telicity, as are the resultative constructions containing them. Therefore, an explanation for the distinct intransitive-based resultative patterns is not provided by this notion.

We therefore seek an alternate semantic difference between the two resultative patterns which can also be tied to the difference in their syntax. Following our earlier work (L&RH 1999; RH&L 2001), we suggest that the difference lies in the complexity of the events denoted by the two resultative patterns. This proposal reflects an assumption that a simple vs. complex event distinction is crucial to argument expression, a proposal that is implicit in RH&L (1998) and made explicit in Levin (2000). In section 4 we argue that the notion ‘complex event’ should not be identified with the aspectual notions ‘accomplishment’ and ‘telic event’ that have been previously suggested as controlling argument expression.

3 Event Complexity and Resultative Constructions

The linguistic representations of events can be characterized according to whether they are complex, consisting of two subevents, each of which is a well-formed and potentially independently-occurring event, or simple, consisting of a single subevent. The distinction has consequences for argument realization via the Argument-Per-Subevent Condition (L&RH 1999:202; RH&L 2001:779), a condition which follows from RH&L’s (1998:112-113) Argument Realization Conditions and which has analogues in the work of Grimshaw and Vikner (1993), van Hout (1996), and Kaufmann and Wunderlich (1998).

(7) The Argument-Per-Subevent Condition: There must be at least one argument XP in the syntax per subevent in the event structure.

As a consequence of this condition, argument realization patterns reflect event complexity, with simple and complex events having distinct argument expression options, which are tied to their differing event structures. In previous work, we accounted for the difference between the argument expression possibilities of various semantic classes of verbs by invoking principles which associate event structures of specific types with the components of meaning lexicalized by verbs; see Levin (1999) and RH&L (1998) for further discussion. Here, we review the results of L&RH (1999) and RH&L (2001), showing how the distinction in event types provides the foundation for an explanation of the need for a reflexive pronoun in some intransitive-based resultatives.

If we could show that reflexive resultatives have a complex event structure, then it would follow that such resultatives must include an object — the so-called ‘fake’

reflexive pronoun — to meet the Argument-Per-Subevent Condition, which requires two arguments to be realized since complex events have two subevents (L&RH 1999:203-204; RH&L 2001:780). L&RH (1999:207-211) and RH&L (2001:775-777) argue that reflexive resultatives do indeed have a complex event structure based on the lack of 'temporal dependence' between the subevents in the events denoted by such resultatives, a property shared with lexical causatives, which are uncontroversially taken to denote complex events (Dowty 1979:91-4; L&RH 1995:83; McCawley 1971; Parsons 1990:109-11). By lack of temporal dependence between the subevents, we mean that the two subevents need not necessarily unfold together temporally, with the result that a fair amount of flexibility is expected in the temporal relation between them. Temporal independence is illustrated for reflexive resultatives in (8), where the singing doesn't immediately result in hoarseness. Lack of temporal dependence also holds of lexical causatives, as illustrated by the examples in (9). In (9a) the act of putting arsenic in the coffee does does not extend to the point of death, and in (9b) the banging may have been protracted, but the breaking is punctual.

(8) Sam sang enthusiastically during the class play. He woke up hoarse the next day and said: 'Well, I guess I've sung myself hoarse'.

(9) a. The widow murdered the old man by putting arsenic in his coffee.
b. Casey's persistent banging broke the window.

In L&RH (1999) we take lack of temporal dependence between the events in a single clause to be the criterial property of a complex event. If so, lack of temporal dependence between events dictates a complex event structure, which itself dictates the reflexive resultative pattern.

Bare XP resultatives are also often analyzed as being complex events (Carrier and Randall 1989; Croft 1991; Foley and Van Valin 1984; Pustejovsky 1991; Van Valin 1990). In some instances this analysis appears to be particularly appropriate since the event represented by the result XP is not entailed by the verb. For instance, in the examples in (5) neither the steaming nor the boiling need entail a resulting state of dryness. However, the syntax of bare XP resultatives suggests a simple event analysis, since a complex event analysis would require a second argument by the Argument-Per-Subevent Condition. The key to understanding the appropriate analysis of these bare XP resultatives lies in understanding the temporal relations between their purported subevents. Consider *Kim danced to the other side of the stage*, where there are events of dancing and of going onto the stage. In this example, the dancing must continue until Kim reaches the other side of the stage. Thus, in contrast to reflexive resultatives, bare XP resultatives have subevents which are necessarily temporally dependent in that they must unfold together. As a

consequence, both subevents, as well as the event as a whole, must have the same duration. Thus, the temporal contour of the event denoted by a bare XP resultative necessarily depends on that of the event denoted by the verb which heads it, as we discuss in L&RH (1999:208-209) and RH&L (2001:775-776). For example, the verb *bang* in isolation denotes a punctual event, and when it is found in the bare XP pattern *The gate banged shut*, the event as a whole is also interpreted as punctual, while the verb *rumble* denotes a durative event, and when it is used in the bare XP pattern *The gate rumbled shut*, the event as a whole is also interpreted as durative. In contrast, as expected given that the subevents in a reflexive resultative are not necessarily temporally dependent, the temporal contour of the event introduced by the verb can differ from that of the event introduced by the result XP. L&RH (1999:209) illustrate this property with (10). Here the use of the matrix verb *wait* asserts that the event described by the reflexive resultative is durative, forcing an iterated interpretation of the semelfactive verb *cough*. Yet, (10) allows an interpretation in which, following a series of coughs, the car came to life with a sudden start; thus, the achievement of the result state is punctual, even if the event as a whole is durative.

(10) . . . I waited for the Jetta to cough itself awake. [V. Wilson Wesley, *No Hiding Place*, G.P. Putnam's Sons, New York, 1997, p. 171]

Given the necessary temporal dependence of subevents that characterizes bare XP resultatives, L&RH (1999) argue that a simple event analysis is justified for such resultatives, even thought two subevents are often discernible. Specifically, they propose that the subevents constitute a single event in event structure terms even if they are distinct events in conceptual structure terms. To justify the single event analysis, L&RH show that the subevents satisfy conditions on event identity, such as being necessarily temporally dependent, allowing them to be 'coidentified'. They suggest that coidentified events could be seen as properties lexicalized in different predicates, but predicated of the same event variable. Evidence for such an analysis comes from adverbial modification (L&RH 1999:207-209; RH&L 2001:776-777). A rate adverbial inserted into a bare XP resultative is understood as modifying both events. For instance, *Tracy quickly ran to the library* entails both that Tracy got to the library quickly and that she ran quickly. If the two subevents described in this sentence were not necessarily temporally dependent, then *quickly* should be able to modify the running event, while a second temporal phrase should be able to independently specify the amount of time it takes to reach the destination. However, (11), which represents an attempt to do this, is judged to be a contradiction. The adverbial *quickly*, then, modifies both the traversal of the path and the manner of movement, suggesting that they are indeed predicated of the same event variable.

(11) Tracy ran quickly to the library, but it took her a long time to get there since she took a circuitous route.

Event complexity makes the right cut with respect to the intransitive-based resultative examples in (1) and (2), repeated here as (12) and (13). The subevents denoted by the bare XP resultatives in (12) are necessarily temporally dependent: the steaming and the boiling must both be temporally coextensive with the becoming dry. In contrast, the subevents in the reflexive resultatives in (13) need not be necessarily temporally dependent: the screaming and the walking do not necessarily have to be coextensive with the becoming hoarse or becoming tired.

(12) a. The clothes steamed dry on the radiator.
b. The kettle boiled dry.

(13) a. The fans screamed themselves hoarse.
b. The tourists walked themselves tired.

Thus, the notion of event complexity, grounded in temporal dependence, appears to succeed precisely where the notions of telicity and incremental themehood fail.

What determines whether or not the two events denoted in a resultative construction are temporally dependent? Temporal dependence appears to be based on our knowledge of the world, on the nature of the events denoted by the verbs and represented by the result XPs, and on the interdependence between them. As a consequence, in some instances the very same action can be associated with the bringing about of a particular change in either a temporally dependent or a temporally independent way. In such instances, our approach predicts that the same verb and the same XP can appear in both the bare XP pattern and the reflexive pattern. As discussed in L&RH (1999:210-211) and RH&L (2001:777-778), the examples in (14)-(16) of bare XP and reflexive resultatives which share both the same verb and the same result XP illustrate this phenomenon.

(14) a. … a man grabbed and groped her and tried to get under her clothing, but she kicked free and fled. [*The Courier-Journal*, 4/21/1998, p. 05B]
b. 'Laughing uproariously, Beckett lunged around the office with one leg of his pants on fire, trying to kick himself free. …' [*The Washington Post*, 8/9/1998, p. F01]

(15) a. One woman gets up to leave, but Red-Eyes grabs her roughly by the arm and pulls her into his lap. She wriggles free, but remains seated obediently beside him. [*The Ottawa Citizen*. 11/30/1997, p. D10]

b. ‘Mr Duggan became alarmed about being caught in the door of a lift which was about to begin its descent and wriggled himself free.’ [*The Irish Times*, 12/2/1994, p. 4]

(16) a. … one of his race cars wiggled loose inside the transporter and caused damage to both of his cars. [*Kansas City Star*, 8/1/1997, p. D11]

b. ‘I had it [=the snake] pinned and when I lifted it up into the bag, it wiggled itself loose and just sank its fangs on my knuckle’ … [*The Washington Post*, 7/11/1998, p. C03]

In these pairs the choice of resultative pattern cannot be attributed to either the verb or the result XP. Furthermore, it is difficult to think of an explanation for the existence of such minimal pairs based on telicity, incremental themehood, or any other semantic notion usually tied to unaccusativity, such as agentivity.[4] This pattern is duplicated with verbs of exerting force such as *jerk, pull, tug*, and *yank*. When these verbs are combined with APs such as *loose* or *free*, they give rise to pairs such as *The child jerk free of his mother's grasp/The child jerked himself free of his mother's grasp*. These verbs also are atelic in isolation, and both bare XP and reflexive resultatives with these verbs are telic. It is difficult, once again, to imagine an account of such minimal pairs that is based solely on telicity and that makes no appeal to a notion of temporal dependence.

4 What Is a Complex Event?

Although we have grounded the notion ‘complex event’ in a property reflecting an event's internal temporal constitution, this notion is not simply a recharacterization of familiar aspectual notions. The notions ‘accomplishment’ and ‘telic event’ are often taken to describe events comprised of two subevents and, hence, are equated with the notion ‘complex event’. In this section we show that these aspectual notions are not equivalent to the more specific notion ‘complex event’ that we showed in the previous section to be relevant to argument expression: an event comprised of two subevents which are not necessarily temporally dependent. Some event types fall together under the rubrics ‘accomplishment’ and ‘telic event’, while others fall together under the rubric ‘complex event’, and these two sets are not the same.

[4] Although the reflexive resultative examples that are typically cited in the literature have animate agentive subjects, such resultatives do not require agentive subjects. We have found reflexive resultatives with inanimate subjects, such as (10) and … *the splendid Tacoma Narrows Bridge … bounced itself to bits on Nov. 7* … [*The New York Times Book Review*, 7/5/1992, p. 5].

We have proposed that the notion of a complex event with temporally independent subevents enters into grammatically-relevant generalizations, in that the argument expression options of such events are constrained in a certain way. This notion was shown to be relevant for accounting for the distribution of verbs in the two intransitive-based resultative patterns, as well as to the argument expression alternations available to particular verbs, as elaborated in Levin (1999) and RH&L (1998, to appear). But the set of events that qualify as complex is not identical with the set of events that qualify as accomplishments or telic events. Accomplishments and telic events are characterized by a different set of properties that are more semantic in nature than the argument expression properties that typify complex events; these involve the distribution of temporal adverbials and temporal entailments, such as the entailment from the progressive to the perfect.

If the notion 'accomplishment' is taken to be temporally defined, as Vendler (1957) intended, then an accomplishment is an event with a duration and an endpoint, a definition that makes no mention of event complexity. The class of accomplishments is linguistically significant because accomplishments share a number of properties, perhaps the most widely cited among them being their ability to take '*in* x time' adverbials. Most of the diagnostics which single out accomplishments are semantic in nature because they pick up on an essential property of accomplishments: they are events that lack the subinterval property in the sense of Dowty (1979). That is, accomplishments have the property that no proper subpart of the event is an instance of the event itself, a property that arises because accomplishments are defined by having a particular endpoint. They contrast in this respect with activities, which do show the subinterval property. Consequently, accomplishments when used in the progressive do not show the same entailments that activities do, as illustrated in (17) and (18).[5]

(17) a. Sasha is melting the butter. $\not\Rightarrow$ Sasha has melted the butter.
  b. Sasha is running to the store. $\not\Rightarrow$ Sasha has run to the store.

(18) a. Sasha is running. $\Rightarrow$ Sasha has run.
  b. The dog is barking. $\Rightarrow$ The dog has barked.

In contrast, the notion of a complex event as we have defined it is insensitive to whether an event has an endpoint, a criterial property not only of accomplishments,

[5] All telic events, whether accomplishments or achievements, lack the subinterval property; therefore, telic events form a linguistically significant class. Whether or not the distinction between the two types of telic events is linguistically significant is a matter of debate, which is not relevant to our discussion; see Mittwoch (1989) and Verkuyl (1989, 1993) for representative discussion of the two positions on this issue. In the remainder of this section, we focus on accomplishments because the issue of event complexity has been raised primarily with respect to them.

but telic events in general; rather, it is associated with the semantic property of lack of necessary temporal dependence of subevents and the syntactic property of requiring an argument XP for each subevent.

The equation of the notions ‘accomplishment’ and ‘complex event’ seems to have come about via the identification of accomplishments with causative events. Since causative events, being composed of a causing and a caused subevent, are necessarily complex events, accomplishments too, then, are taken to be complex events. The identification of accomplishments with causatives has its roots in Dowty’s (1979) attempt to represent Vendler’s (1957) aspectual classes using lexical decompositions inspired by work in generative semantics. Generative semanticists proposed a bieventive (actually a bisentential) analysis for lexical causatives (Lakoff 1970; McCawley 1968, 1971), and Dowty extends this analysis to accomplishments more generally.

The motivation for the decompositional complex event analysis of causatives comes from triads based on adjectives and verbs with a shared name. These triads are exemplified by the adjective *cool*, which describes an entity in a state, the intransitive verb *cool*, which is an inchoative verb describing the attainment of this state by an entity, and the transitive verb *cool*, which is a causative verb describing a causer bringing about this state in an entity. These three uses of *cool*, which all have meanings built on the state they take their name from, are exemplified in (19). The existence of relations between these three uses of *cool* has been demonstrated by pointing to the shared selectional restrictions on their theme arguments and to the entailment relations between the sentences in (19)(Lakoff 1970).

(19) a. The soup was cool.
b. The soup cooled.
c. Alex cooled the soup.

It is the association of a result state with lexical causatives and inchoatives which is largely responsible for the equation of accomplishments with causatives, as well as the equation of achievements — the second type of telic event, which is typified by having an endpoint, but no duration — with inchoatives. Dowty (1979:77-78), following an earlier suggestion of Kenny’s quoted in (20), proposes that the endpoints of accomplishments and achievements define result states, hence capturing their telicity.

(20) But every performance must be ultimately the bringing about of a state or of an activity . . . One performance differs from another in accordance with the differences between states of affairs brought about: performances are specified by their ends. (Kenny 1963:178)

There is, then, another way in which the notions ‘accomplishment’ and ‘lexical causative’ converge. Not only are result states important to the characterization of accomplishments, but many lexical causatives, including deadjectival verbs such as *cool*, are also built on result states. Since lexical causatives more often than not are accomplishments aspectually, it is easy to see, then, why accomplishments, being associated with a result state, might be taken to be causative events, and, since causative events are necessarily complex events, accomplishments too are taken to be complex events.[6] Many have adopted the causative analysis of accomplishments presented in Chapter 2 of Dowty (1979), including Erteschik-Shir and Rapoport (2000), Slabakova (1997), Sybesma (1992) and Van Valin and colleagues (Foley and Van Valin 1984; Van Valin 1990, 1993, but see Van Valin and LaPolla 1997). Such analyses persist even though what essentially emerges from Dowty’s Chapter 3 (1979) is that the classes of events which are defined by the lexical decompositions he proposes do not have uniform temporal properties. In this chapter, Dowty himself shows that the two notions ‘accomplishment’ and ‘causative’ cannot be so easily equated and further studies affirm their independence (Hay et al. 1999; Levin 2000; Pustejovsky 1991; Van Valin and LaPolla 1997). Once the link between the notions ‘accomplishment’ and ‘causative’ is weakened, so is the link between the notions ‘accomplishment’ and ‘complex event’.

We now review evidence that there are complex events that are not accomplishments and accomplishments that are not complex events; this discussion draws once more on Levin (2000:416-418), L&RH (1999:205-207), and RH&L (2001:780-782; in press). First, not all complex events, as we have defined them, are accomplishments. Assuming that lexical causatives are uncontroversially complex events, then it is telling that there are causative predicates in every aspectual class (McCawley 1976; Van Valin and LaPolla 1997). Specifically, causatives of certain atelic non-change of state verbs are themselves atelic.

(21) a. Robin flew a kite for an hour/#in an hour.

b. Pat bounced the ball for ten minutes/#in ten minutes.

Second, not all accomplishments are complex events in the sense of having two subevents that are not necessarily temporally dependent. Consider a bare XP resultative such as *Kim danced onto the stage*. In terms of its temporal contour, it

[6] But see Pustejovsky (1991) and van Hout (1996) for an alternative analysis of telic predicates that does not refer to causation: telic predicates are defined as transitions from one event to a second, often a transition from an atelic process to a result state. On this analysis, all telic events — whether achievements or accomplishments — are complex events; however, since telicity does not seem account for many basic facets of argument expression, as discussed by Levin (2000) and RH&L (in press) and also in this section, this approach does not provide an appropriate basis for a theory of argument realization.

denotes a telic event, specifically an accomplishment, since the event has a duration and a set terminal point. In this respect, bare XP resultatives do not necessarily differ from reflexive resultatives. However, we have argued that their properties are not explained by their telic aspectual classification, but by assigning them a simple event structure. There have been claims that such resultatives, particularly those based on manner of motion verbs, should receive a causative analysis because they are accomplishments (Van Valin 1990:224; see also Croft 1991:160).

(22) Susan ran to the house.
[**run**′(Susan)] CAUSE [BECOME **be-at**′(house, Susan)]
(Van Valin 1990:224, (3d))

But we have already shown that the syntax of these sentences is best accounted for if these resultatives are not given a complex event analysis. See also L&RH (1999:205-207), RH&L (2001:780-782), and Van Valin and LaPolla (1997:101) for further arguments again a complex event analysis.

Another set of accomplishments that are not complex events involve verbs of consumption. As is well-known, such verbs are telic when found with a quantized object (e.g., *Pat has eaten a nectarine*), and, in fact, Jackendoff (1990) has proposed that such verbs generally should receive a causative analysis, as in (23).

(23) $[\text{CAUSE}([_{\text{Thing}}\ ]^{\alpha}{}_{\text{A}},[\text{GO}([_{\text{Thing}}\ ]_{<A>}, [\text{TO}\ [\text{IN}\ [\text{MOUTH-OF}\ [\alpha]]]])])]$
(Jackendoff 1990:253, (20a))

If Jackendoff is correct in attributing a causative analysis to verbs of consumption and if causatives are taken to be complex events (even if Jackendoff's own analysis of causatives is not bieventive), then the complex event-accomplishment connection would receive further support. If verbs of consumptions indeed denote complex events, then they should pattern with lexical causatives — that is, transitive change of state verbs — with respect to argument realization, yet they do not. For instance, transitive change of state verbs are not found in nonsubcategorized NP resultatives, as shown in (24), a property that RH&L (1998) link to their complex event analysis, while verbs of consumption are found in such resultatives, as shown in (25), suggesting a simple event analysis for these verbs in isolation.

(24) a. ∗The puppy broke his owner to distraction.
b. ∗The stagehand dimmed the scene dark.

(25) a. They [the grasshoppers] ate the whole prairie bare and brown. [L.I. Wilder, *On the Banks of Plum Creek*, 1953; Puffin, Harmondsworth, 1965, p. 169]

b. ... a mother accused of trying to drink her unborn child to death. [B. Quinn, NBC News at Sunrise, 5/27/1999]

More generally, verbs of consumption are more flexible in their argument expression options than change of state verbs, as we delineate in RH&L (in press). The argument that represents the stuff consumed need not be expressed; this property is manifested in the nonsubcategorized NP resultatives in (25), but is reflected more generally in unspecified object uses of these verbs, as in (26). Furthermore, when expressed, this same argument need not be the direct object, as in (27).

(26) Dana ate.

(27) Dana ate (from/of) the apple.

In contrast, change of state verbs are never found in syntactic frames without their patient argument. They are not found in nonsubcategorized NP resultatives, as shown in (24), and they are also not found with unspecified objects, as in (28). Furthermore, the patient must be expressed as the direct object and, as also noted by Tenny (1994), it cannot be expressed as an oblique, as shown in (29).

(28) $*$ Pat broke/dimmed.

(29) a. Alex (*at) the vase.

b. Sam dimmed (*at/from) the lights.

Thus, the behavior of verbs of consumption is strikingly different from that of change of state verbs — a set of verbs that clearly have a complex event structure when transitive. Even if an event of eating involves two subevents conceptually (e.g., an event of ingesting and an event of the food disappearing), these subevents would be temporally dependent, and on our approach the event that encompasses them would not receive a complex event analysis. (The temporal dependence of the ingesting and the disappearance of the food is what is behind the existence of an incremental theme for these verbs, and this, in turn, is responsible for their classification as accomplishments when they take quantized objects.)

It seems best, then, to assign manner of motion verbs and verbs of consumption a simple event structure when they are used telically. For verbs of consumption, boundedness of the event is determined by boundedness of the direct object — or more accurately, a spatial property of the object — and for manner of motion verbs it is determined by boundedness of their argument's path (Hay et al. 1999; Krifka

1998; Ramchand 1997; Tenny 1992, 1994). There is no reason for a causative analysis, as also argued for both types of predicates by Van Valin and LaPolla (1997), and, thus, no independent justification for a complex event analysis.

There is yet another set of accomplishments that do not seem amenable to a complex event analysis. These are verbs with what Dowty (1991:569-570) calls 'representation-source theme' objects, such as *read*, *copy*, *memorize*, and *translate*, as well as similar verbs such as *study*, *recite*, and *perform*; see also Dowty (1979:69-70). The object of *read* is not in any way affected by the reading: the text — the representation source — is internalized by the reader, who forms a mental representation of this text. Like the verbs of consumption, these verbs have incremental theme objects: they are telic when they are found with quantized NP objects. The events they denote could be said to involve two subevents conceptually; for the verb *read*, for example, an event of scanning the text and an event of forming a mental representation of it. Yet, these subevents would be temporally dependent; in reading, for example, the mental representation is formed as the text is scanned. Thus, the events that these verbs denote would not be considered complex events.

Consistent with a simple event analysis, these verbs appear to pattern like verbs of consumption, rather than like change of state verbs. The argument that qualifies as the incremental theme need not be expressed, as shown in (30); in addition, as shown in (31), this argument need not be expressed as the direct object, though it is no longer the incremental theme when it is no longer the direct object.[7]

(30) a. Kelly read/studied.
     b. Kelly read/studied herself into wakefulness.

(31) Kelly read/studied from the textbook.

Once again, it appears that a subset of accomplishments pattern together for purposes of argument realization and that this specific subset is identified by the lack of necessary temporal dependence of subevents. ¿From the perspective of argument realization, the entire class of accomplishments — that is, the set of predicates characterized temporally by having duration and a fixed endpoint — does not pattern homogeneously, a point further illustrated in RH&L (in press), suggesting that this notion is not relevant to argument realization.

[7] Some of the verbs that take incremental theme objects but lack result states are not as readily found without their objects, particularly without being placed in a more elaborated context. This property most likely reflects the recoverability condition on the use of unspecified object forms; see Brisson (1994), RH&L (1998), Resnik (1993), among others, for discussion.

5 Conclusion

Although we have argued that certain much used and traditionally recognized aspectual notions and their relatives are not implicated in the argument expression phenomena discussed here, aspectual notions broadly construed are still relevant. As discussed in section 3, the criterion for determining that an event with two conceptually-identifiable subevents is a complex event rests on the temporal relation between its subevents: these subevents cannot be necessarily temporally dependent. Since by the Argument-Per-Subevent Condition, the simple vs. complex event distinction has repercussions for argument expression in the strong sense of grammatical function, certain aspects of the internal temporal constitution of an event are still relevant to argument expression.

We are not, however, suggesting that traditional aspectual notions be abandoned. We acknowledge their importance, but propose that their primary usefulness is semantic. For example, under a particular understanding of the notion of incremental theme, this term is of great use since it allows a unified account of the different sources of telicity, which are important in determining the sets of entailments for sentences. Nevertheless, traditional aspectual notions seem to have a part to play in some facets of argument expression. In some languages telicity appears to influence morphological case assignment, via alternations in the morphological case of an argument bearing a particular grammatical relation. In Finnish, for example, certain arguments may bear either accusative or partitive case depending on aspectual considerations, though their grammatical relation remains unchanged (Kiparsky 2001).

The question that emerges is whether it is possible to determine which facets of argument expression follow from which kinds of semantic information. That is, why are case alternations sensitive to telicity, while grammatical functions are sensitive to event complexity? We leave this as a puzzle that might lead to profitable future explorations of argument expression.

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